



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,941	03/13/2001	Koichi Ikeshima	WATK:210	9068

7590

04/18/2003

PARKHURST & WENDEL, L.L.P.
Suite 210
1421 Prince Street
Alexandria, VA 22314-2805

EXAMINER

DICUS, TAMRA

ART UNIT

PAPER NUMBER

1774

DATE MAILED: 04/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,941

Applicant(s)

IKESHIMA, KOICHI

Examiner

Tamra L. Dicus

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1774

DETAILED ACTION

1. The Examiner acknowledges the express abandonment and Request for Continuing Examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure contains no description on how a slurry "is applied". Hence, one skilled in the art would not be appraised on how to make the invention. The Examiner takes the position that any slurry that is adhered to a ceramic body will create the claimed invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 (twice amended) - 2 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0798 042 to Kumazawa et al.

'042 teaches a cordierite honeycomb body having excellent thermal shock

Art Unit: 1774

resistance by coating the surface (outer wall) exhibiting a higher thermal expansion coefficient than that of the inner carrier containing inner walls by coating with activated alumina (a raw material) on the outside wall where the thermal expansion coefficient of the outer coating on the body wall being larger than the thermal expansion coefficient of an inside partition wall at pg. 3, lines 51-58, pg. 5, lines 5-20, and Table 1. Page 4, lines 40-56 use the same slurry composition and process of applying the composition. '042 further teaches compressive stress is applied from the outer wall to the inside at page 4, lines 16-25.

6. Claims 1,2, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 4,849,275 to Hamaguchi et al.

Hamaguchi teaches a cordierite honeycomb body having excellent coatability and thermal shock resistance by coating the surface (outer wall) exhibiting a higher thermal expansion coefficient than that of the inner carrier containing inner walls by introducing activated alumina inside the partition walls having 62 cells/cm^2 where compressive stress is applied from the outer wall (see col. 3, lines 13-20; col. 5, lines 1-10; Examples 1-2; and Table 3).

7. Claims 1-2, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,514,446 to Machida et al.

Machida teaches a ceramic honeycomb structural body having an outer portion and center portion comprising cells, where the inner portion of the ceramic honeycomb structural body contains a catalyst seal slurry of active alumina-ceria powders with aluminum nitride solution (see col. 6, lines 5-26) that is dried – sintered under 600 degrees C (fired). Since the materials

Art Unit: 1774

and process used are the same, the characteristics of claim 1 would be expected to be the same absent any evidence to the contrary.

8. Regarding claim 2, Machida further teaches a honeycomb structure body where the outer wall portion of the structure and the structure can be the same material (see col. 3, line 44+, and Figures 1 and 2).

9. At col. 2, lines 38+, the incomplete cells have an area not more than 90% of an area of the complete cells meeting the limitations of claim 6.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,629,067 to Kotani et al. in view of USPN 5,846,899 to Kumazawa et al.

Kotani teaches a ceramic honeycomb structure body comprising cells (through-holes surrounded by partition walls) and an outer wall portion (see Fig. 5), where both the inner and outer walls are of cordierite having the same thermal expansion (see col. 7, lines 24-37). Kotani further teaches an outer coating formed on the outer surface of the body to reduce cells from cracking (see col. 2, lines 28-38) but is silent to the thermal expansion coefficient of the outer coating on the body wall being larger than the thermal expansion coefficient of an inside partition wall. Kumazawa teaches a ceramic honeycomb structural body having a coating

Art Unit: 1774

comprising a catalytic carrier of γ -alumina that when applied to a cordierite honeycomb body, the thermal expansion of the inner body is smaller than the thermal expansion coefficient of the outer carrier coating (which is on the outer body wall) (see Table 1, col. 3, line 65-col. 4, line 46). Kumazawa further teaches applying a compressive stress to the body (see col. 4, lines 45-50) since the outer carrier coating has a larger thermal expansion coefficient. It would be obvious to a person having ordinary skill in the art to modify the ceramic honeycomb structure body taught by Kotani to include a coating comprising a catalytic carrier of γ -alumina on the outer body wall in order to produce a ceramic honeycomb structure that has a larger thermal expansion coefficient on the outer wall of the structural body than the inner wall portion to provide excellent thermal shock resistance.

12. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,514,446 to Machida et al. in view of USPN 5,629,067 to Kotani.

Machida discloses the claimed invention except for the number of cell per unit area and wall thickness requirements. Kotani discloses the outer wall being thicker than the inner wall and the number of cells per unit area requirements of claims 4-5 in Example 1, Figures 4-5, and col. 6, lines 60+. It would be obvious to a person having ordinary skill in the art to modify the honeycomb structure taught by Machida to include the number of cell per unit area and wall thickness requirements for the purpose of alleviating thermal stresses which occur between the outer wall and the body, and to make the structure highly resistant to thermal shock.

13. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,514,446 to Machida et al. in view of USPN 5,629,067 to Kotani and further in view of USPN 5,346,722 to Beauseigneur et al.

Machida in view of Kotani substantially disclose the claimed invention except for a partition wall thickness of less than 0.1 mm. Beauseigneur discloses several examples of honeycomb structures having a range of the numbers of cells per unit area values and typical wall thickness requirements of claims 3-5 in catalytic converter applications at col. 3, lines 50-60. It would be obvious to a person having ordinary skill in the art to modify the honeycomb structure taught by Machida and Kotani to include the desired requirements of Beauseigneur to produce a desired honeycomb structure that exhibits efficient extruder or flow rates.

14. Regarding claim 7, it is known in the art to vary the thickness of the cell walls to because Kotani teaches the variation of wall thickness to gain desired bulk density at col. 1, lines 25-34 and col. 2, lines 5-7 in order to reduce the heat capacity and effectively control exhaust emissions thereby improving the overall efficiency of a catalytic converter.

Response to Argument

4. Applicant's arguments filed 4-7-03 have been fully considered but they are not persuasive.

Applicant protests that in the '042 to Kumazawa reference, there is no discussion that only teaches γ -alumina on the outside of the honeycomb body. Well, the Applicant acknowledges that the γ -alumina is on the outside, and that the TEC is larger than the inside body by citing page 4, lines 12-18 of the reference. Hence proving '042 teaches the claimed invention. Applicant urges that '042 does not discuss the alumina material is "on only the outside". The Examiner never stated the '042 is/is not only on the outside. Regardless, '042 does not have to teach it being only on the outside. Applicant does not claim the alumina only on the outside. Moreover, the '042 references teaches dipping the body in alumina, applying

Art Unit: 1774

stress the same way, and therefore, the alumina would adhere to the outside body and since Applicant has not provided a different way to apply the slurry, the statutory 102(b) rejection is upheld. Applicant further argues volume shrinkage when heat is applied. This is irrelevant since the instant claim does not mention volume shrinkage at all. The fact that Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). The Applicant has not provided **any evidence** to prove the TEC differential is different from what is provided in the reference.

Addressing Applicant's comments on what the Examiner said in the previous interview of Paper No. 8 pertaining to the way in which the alumina adheres to the outside of the ceramic body by dipping, the Examiner would like to remind the Applicant what was said. When asked by the Examiner how the alumina adhered to the outside, the Applicant's answer was, "Why, I don't know". Per page 7, lines 10-19 of the disclosure of the instant application, the TEC is higher **when** a cordierite slurry is applied to the outside and fired. There is no mention of how it is applied, so the Examiner takes the position that the Applicant has failed to disclose the invention and the body being dipped and fired is the same and the TEC differential remains inherent-hence the motivation for the 112 1st paragraph rejection. Since the same materials and places of application are the same, one can only come to one conclusion, the TEC differential is present. As said in the interview, the alumina is not removed, Kumazawa teaches it is not removed, so it is present and so is the TEC differential.

Art Unit: 1774

Applicant's arguments concerning how a skilled artisan would/would not coat a ceramic body is irrelevant since the Applicant has not disclosed how THEY make the article. Applicant further points to different tests such as thermal shock resistance, again this is irrelevant. The Examiner never mentions such test results as Applicant does not claim such test results.

Regarding how the '042 Kumazawa reference uses the slurry as a washcoat is immaterial especially since Kumazawa teaches the slurry is not removed. The fact that the reference uses the slurry for a different purpose is of no consequence. In response to Applicant's contentions that '042 Kumazawa does not teach alumina on the outside of the honeycomb body is not true. Further, the intentions of the catalyst maker is not germane. Kumazawa explicitly teaches the claimed invention as the record thoroughly explains.

Applicant contends that Hamaguchi does not teach or suggest a higher thermal expansion coefficient than that of the inner carrier containing inner walls. The Examiner disagrees. The coating on the outside of the carrier is equivalent to an outer circumferential wall. The TEC is higher on the coating than inside the carrier as explained by Hamaguchi **at col. 3, lines 12-20 and Example 1**. Hamaguchi very well teaches outer walls and inner wall portions since he teaches the exact same cell thickness and wall thickness of the structure. See Example 1. Again, the same process of applying a slurry and then firing it is taught, which is the EXACT same way Applicant discloses and claims.

Applicant argues that Machida does not teach a TEC differential. The Examiner does not agree. Machida teaches the very same materials and process (see col. 6, line 28) as set forth by Applicant to produce a honeycomb structure which inherently produces the same TEC differential. This property remains unless Applicant **proves** otherwise. That Machida teaches a

two-step process is immaterial especially since Applicant does not even teach *any* process.

Again, refer to col. 6, lines 5-26, which teach the alumina slurry applied to the ceramic body and fired. Applicant appears to ignore this teaching. Applicant further discusses different methods and tests that are not claimed and hence are not important to the instant application.

5. Applicant urges Kotani and Kumazawa are not combinable. The Examiner disagrees. The fact that applicant has recognized another advantage (thermal shock resistance) which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). The Applicant has not provided any evidence to prove the TEC differential is different from what is provided in the references. Moreover, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant further urges Machida and Kotani are not combinable as they fail to teach the TEC differential. Again, Machida and Kotani teach the same materials being applied to the same areas of a ceramic honeycomb body and no differences are seen.

Applicant concludes that Machida, Kotani, and Beauseigneur are not combinable as none teach the TEC differential in the direction of applied stress. Again, the Examiner disagrees, motivation exists. The same materials being applied to the same areas of a ceramic honeycomb body and no differences are seen. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the

Art Unit: 1774

rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).


Conclusively, as explicitly explained, the same material, alumina, is adhered in the same manner, the body being dipped-applied to the outside wall, and hence a higher TEC on the outside than the inside is taught. Kumazawa, Hamaguchi, and Machida teach the claimed invention. All teach a raw material, as in the disclosure, of corderite and/or alumina. Applicant has not persuasively argued.

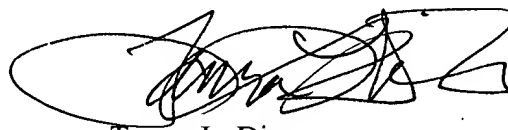
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-8329 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


N. EDWARDS
PRIMARY EXAMINER


Tamra L. Dicus
Examiner
Art Unit 1774

04/15/03